

Cytomegalovirus infection and neurovascular damage in the Bordeaux-3C cohort

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Key points:

- We explored the influence of cytomegalovirus (CMV) infection on both neuroimaging markers of vascular damages and onset of cerebrovascular diseases
- We found associations in favour of greater neurovascular damages in CMV-infected participants, particularly in individuals with higher neuroinflammation level
- CMV infection was not associated with vascular dementia or stroke in our study

INTRODUCTION

- **CMV infection is frequent and may contribute to vascular damages**
- **Findings of studies** on CMV infection and cerebrovascular diseases such as stroke or vascular dementia (VD) **remains inconsistent**
- **Few studies have examined early neuroimaging markers** of vascular damages or the **potential modifying roles of factors** such as **age, neuroinflammation, and APOE4 status**

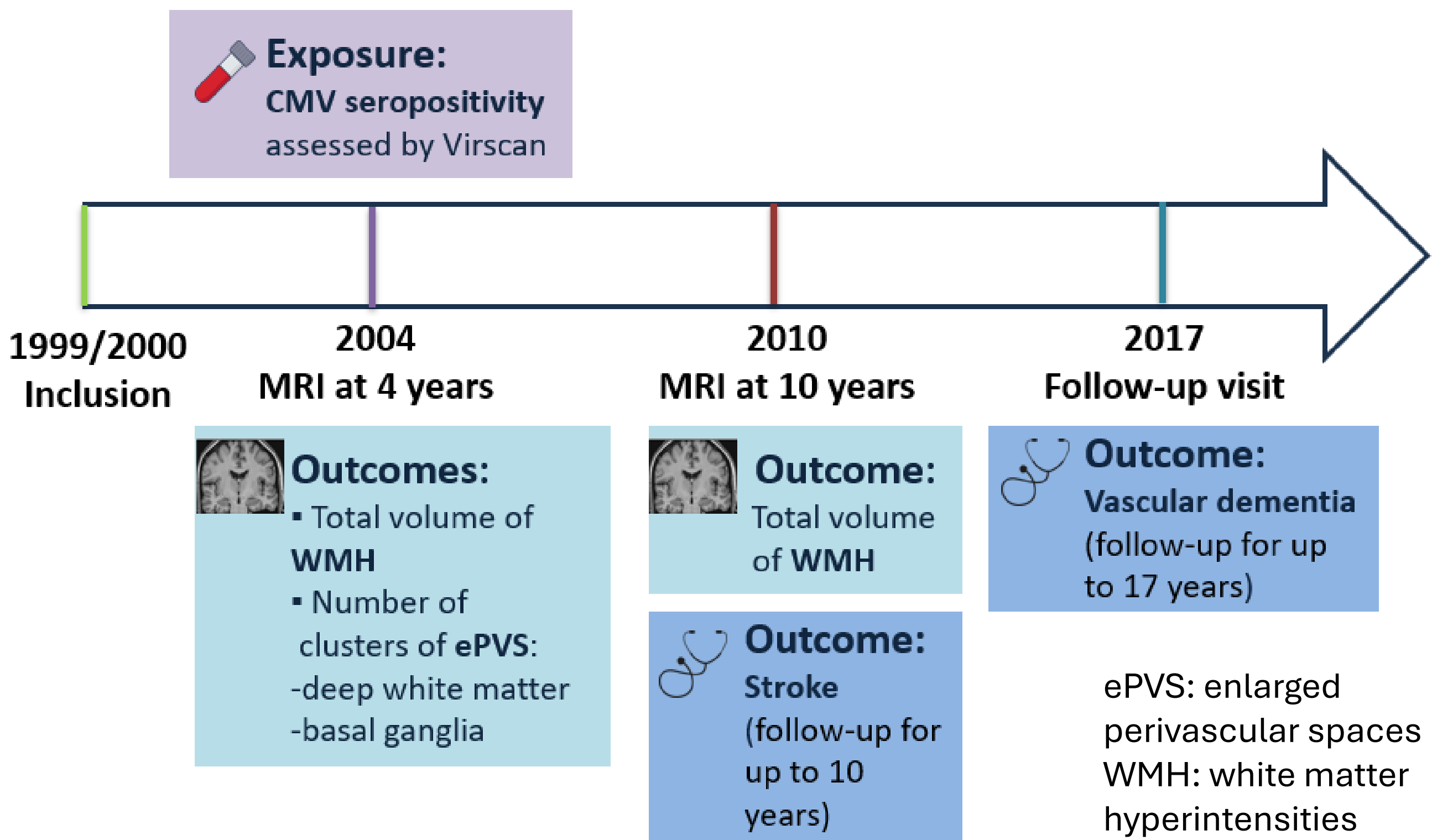
OBJECTIVE

Assess the association between **CMV infection and both neuroimaging markers of vascular damage and the occurrence of stroke or VD** taking into account factors could modify this association (age, neuroinflammation (via plasma glial fibrillary acidic protein (GFAP) levels) and APOE4)

➤ **Statistical models: adjusted multiple linear regressions or Cox models**

METHODS

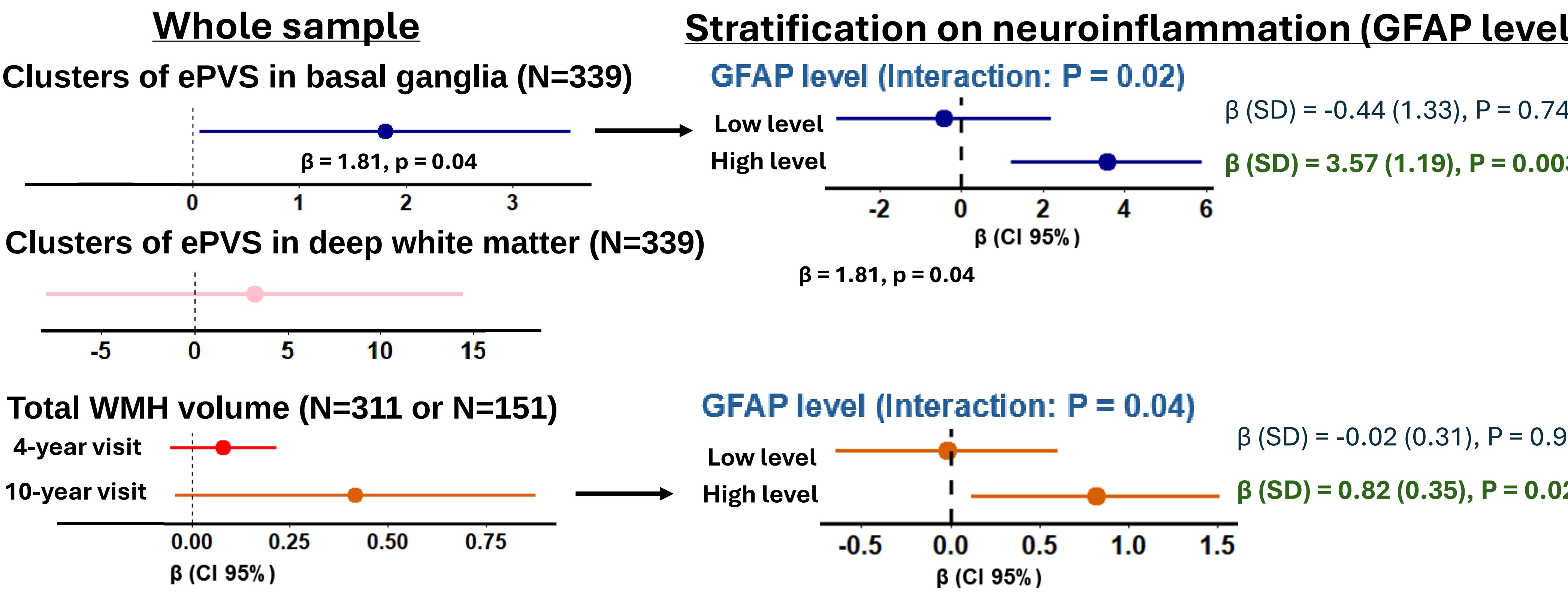
Available data and study design: Population from 3C-Bordeaux cohort



RESULTS

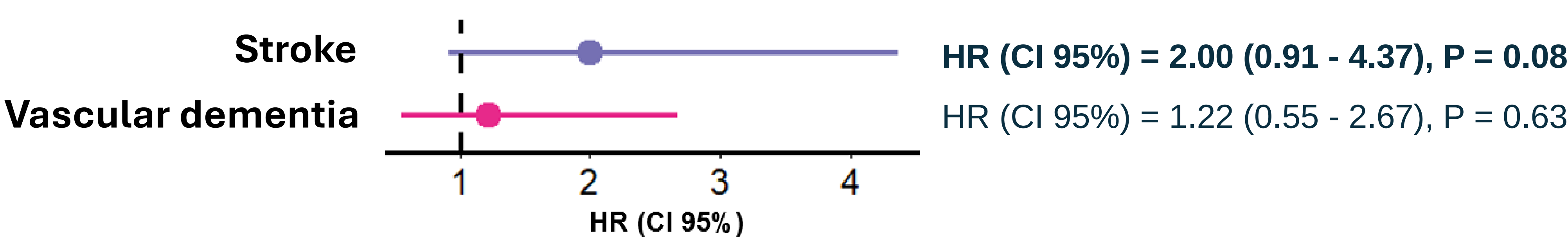
In the larger study sample (N=1156 for VD) with a mean age of 74 years; 63% were women, 67% were CMV-seropositive, and 19% were APOE4 carriers. During follow-up, 44 participants developed stroke and 31 developed VD.

CMV infection and neuroimaging markers of vascular damages:



- ➔ Greater number of ePVS-clusters in the basal ganglia in CMV-infected participants
- ➔ Significant interactions only with GFAP level for ePVS in basal ganglia and total WMH volume at 10 year
- ➔ neurodamages only in CMV-infected participants with higher GFAP level

CMV infection and risk of stroke or VD:



- ➔ Trend toward an increased risk of stroke in CMV-infected participants (P = 0.08)
- ➔ No significant interaction with age, APOE4 status or GFAP levels

CONCLUSION

We combined diagnoses of cerebrovascular disease with neuroimaging vascular markers to **better characterize brain vascular health in our study**. Our results showed **greater neurovascular damage in CMV-infected subjects compared to non-infected ones, particularly among participants with higher levels of GFAP**. Further analyses are underway to examine and understand the role of neuroinflammation in CMV effects.